Institute of Cannabis Research
COLORADO STATE UNIVERSITY PUEBLO

May 2023 e-Newsletter
Volume 17

COLORADO LAW AND POLICY

Colorado Marijuana Legislation
Two of Several Bills being Considered
TSB23-271
Intoxicating Cannabinoid Hemp And Marijuana
Concerning the regulation of compounds that are related to cannabinoids, and, in connection therewith, making an appropriation.

Bill Summary

Current law requires the manufacturer of cosmetic products, dietary supplements, food products, and food additives, including hemp products, to be registered with the department of public health and environment (department). The bill creates a new framework for the department to regulate and register hemp products and certain intoxicating hemp products and for the marijuana enforcement division in the department of revenue (division) to regulate intoxicating products or potentially intoxicating compounds that are or may be cannabinoids. This regulation includes:

- The power to promulgate rules authorizing or prohibiting chemical modification, conversion, or synthetic derivation to create certain types of intoxicating cannabinoids;
- Labeling and advertising requirements;
- Production and testing requirements; and
- Inspection, record-keeping, and tracking requirements; and
- Prohibiting the export of a safe harbor hemp product that is a synthetic cannabinoid or that is being exported to a state where it is illegal.

Please find the link to the entire bill here:
https://leg.colorado.gov/bills/sb23-271

In this Issue

COLORADO LAW AND POLICY

HB23-1279
Allow Retail Marijuana Online Sales
Concerning the ability of a licensed retail marijuana store to sell retail marijuana to a person who is not physically present on the store's licensed premises.

Bill Summary

Current law prohibits a licensed retail marijuana store from selling retail marijuana or retail marijuana products over the internet or through delivery. The bill repeals the prohibition allows a licensed retail marijuana store to accept payment online for the sale of retail marijuana and retail marijuana products. An individual must be physically present on the retail marijuana store's licensed premises to take possession of the purchased retail marijuana or retail marijuana product.The retail marijuana store must verify that the individual is at least twenty-one years of age and ensure that an individual purchasing retail marijuana or retail marijuana products online is provided with digital versions of all warnings or educational materials that the retail marijuana store is required to post and provide on its licensed premises.

The 2023 Cannabis Research Conference is COMING SOON!!!
Mark your calendar!!!

JOURNAL OF CANNABIS RESEARCH

Journal of Cannabis Research

The Journal of Cannabis Research (JCR) is the official publication of the Institute of Cannabis Research. It is the only broadly multidisciplinary journal of cannabis research, encompassing not only clinical and scientific research, but also research into social, business, economic, legal, environmental, and ethical impacts of cannabis use and the changing legal status of cannabis. To learn more about the aims and scope of the journal as well as submission guidelines, please visit: Journal of Cannabis Research

Please see two recent articles here:

- Unintentional ingestion of putative delta-8 tetrahydrocannabinol by two youth requiring critical care: a case report
- "It doesn't make any sense to even try": the disruptive impact of COVID-19's first wave on people with chronic pain using medical cannabis in New York

The Institute of Cannabis Research is accepting donations to support future cannabis research. You, our friends, colleagues and supporters, have the ability to help us continue with cutting edge research by donating to the ICR Research Fund. Please consider contributing to this important research to enhance our understanding of the applications and impacts of cannabis. All donations contributed are tax deductible. Please consider a year-end donation or feel free to contact the Foundation Office to learn of donations through wills, trusts, and etc.

Donate Here

Follow Us on our Facebook and LinkedIn

ICR RESEARCH

Our funded FY23 Research Studies have been announced. Funded projects focus on topics related to cannabis research, including biology, chemistry, physiology, and agronomy; medical and clinical research; and public health and harm reduction/societal impacts. These projects have an anticipated start date of October 1st. Please find the link to all of the FY23 awardees here: https://www.csupueblo.edu/institute-of-cannabis-research/research/research-studies/index.html

Mike Van Dyke, PhD
Associate Professor, Center for Health, Work, and Environment, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
Potential Health Effects of Heavy Metals in Cannabis Flower, Concentrates, Vape Devices, and Vape Emissions

Dr. Mike Van Dyke

Inhalation exposure to heavy metals such as lead, cadmium, arsenic, nickel, mercury, and manganese can increase the risk for cancer as well as neurological, renal, cardiovascular, and hepatic outcomes. Smoking or vaping cannabis products can result in inhalation exposure to many different heavy metals due to plant absorption of these metals from soil, irrigation water, or fertilizers and leaching of these metals from vape hardware. Currently, cannabis is regulated for only four heavy metals (lead, cadmium, arsenic, and mercury) despite known health effects from other co-occurring heavy metals. Pharmaceutical products are regulated for 24 heavy metal or "elemental" impurities. Metal exposure from cannabis vaping represents a problem with significant public health urgency, given that cannabis vaping as the primary method of use has increased 50% between 2017 and 2019 in the U.S., and that past research has identified chromium, lead, tin, and nickel as detectable in cannabis vapors at higher concentrations than in tobacco smoke. This project brings together an innovative partnership between academic researchers and Kaycha Laboratories, a national cannabis testing laboratory, to answer important public health questions including the levels of 21 heavy metals in commercially grown cannabis, vape device construction and use conditions important in leaching of these heavy metals into cannabis oils, and most importantly, the potential health risks from exposure to these heavy metals through smoking or vaping cannabis.

UPCOMING WEBINARS

Institute of Cannabis Research at Colorado State University Pueblo

Cannabis Research Webinar Series

Jefferson Thomas Jefferson University | Lambert Center for the Study of Medicinal Cannabis & Hemp

May 11th Webinar: The ICR and Lambert Center are pleased to host Dr. Tory Spindle for the webinar on May 11th at 1:00PM MST Register Here:
Title: "Using human laboratory studies to advance cannabis regulatory science"

Dr. Tory Spindle

Dr. Tory Spindle obtained his PhD in Experimental Health Psychology from Virginia Commonwealth University. Broadly, Dr. Spindle utilizes human laboratory studies to characterize the behavioral pharmacology of cannabis and individual cannabis constituents. His research seeks to understand how factors such as route of administration (oral, vaped, smoked, topical), dose, product formulation/chemical composition profile, and user factors (e.g., puffing topography, sex, tolerance) impacts the pharmacokinetic and pharmacodynamic effects of cannabis. Another emphasis of his work is on characterizing cognitive, psychomotor, and driving impairment associated with cannabis, when used alone and in combination with alcohol. Overall, Dr. Spindle's work is intended to inform policy decisions involving cannabis such as product standards and accessibility, dosing guidelines, and procedures for detecting cannabis impairment. Because the overarching goal of his research is to inform policies and regulatory actions for cannabis, his work can be best described as "cannabis regulatory science."

June 8th Webinar: The ICR and Lambert Center are pleased to host Dr. Reinhold Penner, for the webinar on June 8th at 1:00PM MST Registration available soon from this link:
Title: "Cannabinoids as Modulators of Calcium and Inflammation"

Dr. Reinhold Penner

Full Member, Cancer Biology Program, University of Hawai'i Cancer Center
Academic Appointment(s):
Professor (Researcher), Cancer Biology Program, University of Hawai'i Cancer Center
Adjunct Professor, Department of Cell and Molecular Biology, John A. Burns School of Medicine, University of Hawai'i at Mānoa
Director of Research, Center for Biomedical Research, The Queen's Medical Center
Degrees:
MD, University of Göttingen, Germany
PhD, Pharmacology, Justus-Liebig-University of Giessen, Germany
MS, Biology, Justus-Liebig-University of Giessen, Germany
Postdoctoral Fellow, Department of Membrane Biophysics, Max-Planck-Institute for Biophysical Chemistry, Göttingen, Germany

UPCOMING WEBINARS

Institute of Cannabis Research
COLORADO STATE UNIVERSITY PUEBLO

CANNABIS CULTIVATION
Webinar Series

VOLCANI INSTITUTE CELEBRATING 100 YEARS

May 17th Webinar: The ICR Hemp Farmers Association is pleased to host Dr. James DeDecker, PhD, on Wednesday, May 17th, at 11:00AM MST
Register Here: Title: "Hemp Agronomy and Variety Performance in the Midwest US"

Dr. James DeDecker is Director of the Michigan State University Upper Peninsula Research and Extension Center in Chatham, Michigan and a Specialist in the MSU Extension Community, Food and Environment Institute. James has led hemp research at MSU since 2019 with a focus on agronomy, variety performance, and integrated pest management for all hemp products. Together with university collaborators and growers from Michigan, Wisconsin, Illinois and Indiana, James facilitates the Midwest Hemp Research Collaborative, which is currently focused on launching a new participatory research project supported by USDA-NIFA. James also serves as the Michigan representative for the multi-state S-1084 Hatch project focused on collaborative hemp research efforts across the US.

Dr. James DeDecker

June 21 Webinar: The ICR Hemp Farmers Association is pleased to host Dr. Jan Fredrick Stevens on Wednesday, June 21, at 11:00AM MST Registration available soon Here:
Title: "Chemistry and Pharmacology of Cannabinoids"

Dr. Jan Frederik Stevens

Jan Frederik ('Fred') Stevens earned his M.S. in pharmacy (1988), Pharm.D. (1990), and Ph.D. in medicinal chemistry (1995) from the University of Groningen, The Netherlands. He received postdoctoral training at Oregon State University (1995-1999), the Free University of Amsterdam (1999-2000), and the Leibniz Institute for Plant Biochemistry, Halle/Saale, Germany (2000-2002). In 2002, he joined the faculty at Oregon State University (OSU), Corvallis, where he holds positions as Professor of Pharmaceutical Sciences and Associate Dean for Research in the College of Pharmacy. He has authored more than 174 articles in peer-review journals (Web of Science h-index 47; Google Scholar h-index 54). He received five awards for excellence in teaching at the OSU College of Pharmacy. He holds a guest professorship at the University of Antwerp, Belgium, where he teaches a course on medicinal natural products. He serves on the Executive Editorial Board of Molecular Nutrition & Food Research and has served the Phytochemical Society of North America as President (2013-2014). In 2022, he accepted the role of President of the World Polyphenols Congress. His research, funded by the National Institutes of Health and the US Department of Agriculture, aims to determine the role and function of dietary phytochemicals in human health and disease. More than 90 postdoctoral fellows, graduate students, undergraduate students, visiting scholars, and foreign exchange students received research training in the Stevens Laboratory. Mass spectrometry-based metabolomics is a major research tool in his laboratory for the discovery of biological effects of vitamins and phytochemicals in cultured cells, animal models of disease, and in humans.

SEM image of a sessile glandular trichome on Cannabis leaf, revealing the secretory cavity through the small tear (arrow) on the surface of the glandular head. Note the characteristic epicuticular waxes on the epidermal cells.

A Deeper Look at Hemp - Scanning electron microscopy images presented by Dr. Eunsoo Kim, Visiting Scientist

This scanning electron micrograph shows two large oil bodies (OB) and a small oil body (arrow) in Cannabis cotyledonary cells. Oil bodies are spherical in shape and varied from 0.5 µm to 6.5 µm in diameter. CW: cell wall